## Lovibond® Colour Measurement

## Tintometer® Group





- fingertip control
- Intuitive icon-based display for fast and easy operation
- Robust construction for a long life in both production and laboratory environments
- Specially designed accessories for a wide range of materials including powder, liquid, gel, paste, granules and solid material
- On-board camera-based locator makes it easy to see what you are measuring for repeatable, stable results

- Set customised parameters for quality control
- Free OnShade PC-based software which allows graphs, statistical process control, shade searching, all available colour, space, colour differences and indices
- Bluetooth® connectivity where available
- Measure fluorescent materials with UV in and UV out
- Multiple language support

**Market sectors** Coatings

> Food and Beverage **Household Products** Medical and Clinical

**Plastics** 



## TR 520 / 500 Accessories









Specially designed accessories for a wide range of materials including powder, liquid, gel, paste, granules and solid material

Optical Geometry         Reflect: di: 8°, de: 8° (diffused illumination, 8 degree viewing angle)           Integrating Sphere Size         Combined LED Light, UV Light         Combined LED Light           Spectrophotometric Mode         Combined LED Light, UV Light         Combined LED Light           Sensor         256 image Element Double Array (MOS Image Sensor)           Wavelength Range         480-700mm           Wavelength Interval         10nm           Semiband Width         10nm           Measured Reflectance Range         0-200%           Measured Reflectance Range         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         GE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         AE*ab, AE*au, AE*94, AE*cmc (2:1), AE*cmc (1:1), AE*cmc, (1:1), AE*00x, AE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATICC, Hunter) YI (ASTM D1313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Illuminant         F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         F2, F1, F1           Display and Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measurement Agreeme	Specifications	TR 520	TR 500		
Light Source         Combined LED Light, UV Light         Combined LED Light           Spectrophotometric Mode         Correct Grating           Sensor         256 image Element Double Array CMOS Image Sensor           Wavelength Range         400~700mm           Wavelength Interval         10 mm           Semiband Width         10 mm           Measured Reflectance Range         0~200%           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         GE Lab, XYZ, Yxxy, Lch, Cie LUV, Hunter Lab           Colour Difference Formular         AE*ab, ΔE*uv, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*00v, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2*/10*           Uluminant         P. F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F7, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset Measurement           Measuring Time         AMAV/SCI: ΔE* = 0.03         MAV/SCI: ΔE* = 0.05           Measurement Mode         Single Measurement, Average Measurement         Macurement	Optical Geometry	Reflect: di: 8°, de: 8° (diffused illur	mination, 8 degree viewing angle)		
Spectrophotometric Mode         Concave Grating           Sensor         256 image Element Double Array CMOS Image Sensor           Wavelength Range         400-700nm           Wavelength Interval         10nm           Semiband Width         10m           Measured Reflectance Range         0-200%           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Difference Formular         AE*ab, AE*uv, AE*94, AE*cmc (2:1), AE*cmc (1:1), AE*00v, AE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2*/10*           Observer Angle         2*/10*           Uburniant         P1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D55, A, C, D50, D55, D75, D75, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         AMV/SCI: ΔE* s0.03         MAV/SCI: ΔE* s0.05           Measuring Time         AMV/SCI: ΔE* s0.03         MAV/SCI: ΔE* s0.05           Measurement Mode         Single Measurement, Average Measurement           Locating Method         Camera View Finder Locating	Integrating Sphere Size	48mm			
Sensor         256 image Element Double Array CMOS Image Sensor           Wavelength Range         400-700nm           Wavelength Interval         10 m           Semiband Width         10 m           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ΔE*ab, ΔE*au, ΔE*ay, ΔA*CC, Hunter) YI (ASTM D125, ASTM 313, TI (ASTM E313, CIE/ISO)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D125, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset Measuring Time         ABC ASS ASS ASS ASS ASS ASS ASS ASS ASS AS	Light Source	Combined LED Light, UV Light	Combined LED Light		
Wavelength Range         400-700mm           Wavelength Interval         10 mm           Semiband Width         10 mm           Measured Reflectance Range         0-200%           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ΔE*ab, ΔE*uv, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*000, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Ulluminant         D65, A, C, D50, D55, D75, P50, P50, P50, P50, P50, P50, P51, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6s           Repeatability         MAV/SCI: ΔE* s.0.3         MAV/SCI: ΔE* s.0.5           Inter-Instrument Agreement         MAV/SCI: ΔE* s.0.15         MAV/SCI: ΔE* s.0.5           Measurement Mode         Single Measurement, Average Measurement         Locating Method         Camera View Finder Locating           Battery         Li-	Spectrophotometric Mode	Concave	Grating		
Wavelength Interval         10mm/Semiband Width         10mm/Semiband	Sensor	256 image Element Double	Array CMOS Image Sensor		
Semiband Width         10π           Measured Reflectance Range         0.200%           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ΔE*ab, ΔE*up, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*000, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/SO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/SO)           Observer Angle         2° / 10°           Uluminant         D65, A, C, D50, D55, D75, F1, E2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F112         D55, A, C, D50, D55, D75, F1, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         AV/SCI: ΔE* s0.03         MAV/SCI: ΔE* s0.05           Measurement Mode         Single Measurement, Average Measurement           Locating Method         AMAV/SCI: ΔE* s0.15         MAV/SCI: ΔE* s0.2           Battery         Li-ion battery, Soon measurements with 8 hours           Uimensions         184mm L x 77mm W x 105mm H           Weight         600g           Illuminant Life Span         5 years, more than 3 million measurements           Displ	Wavelength Range	400-7	00nm		
Measured Reflectance Range         0-20∪W           Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ∆E*ab, ∆E*uv, ∆E*94, ∆E*cmc (2:1), ∆E*cmc (1:1), ∆E*00v, ∆E (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset         Measuring Time         AMAV/SCI: ∆E* ≤ 0.03         MAV/SCI: ∆E* ≤ 0.05           Repeatability         MAV/SCI: ∆E* ≤ 0.03         MAV/SCI: ∆E* ≤ 0.05	Wavelength Interval	101	10nm		
Measuring Aperture         Dual Aperture: 10mm/8mm & 5mm/4mm         Customized Aperture: 8mm/4mm/1x3mm           Specular Component         SCI & SCE           Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ΔE*ab, ΔE*uv, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*00v, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6           Repeatability         MAV/SCI: ΔE* ≤ 0.03         MAV/SCI: ΔE* ≤ 0.05           Inter-Instrument Agreement         MAV/SCI: ΔE* ≤ 0.15         MAV/SCI: ΔE* ≤ 0.05           Measurement Mode         Single Measurement, Average Measurement         Battery           Locating Method         Camera View Finder Locating           Battery         Li-ion battery, 5000 measurements with 8 hours           Dimensions         184mm L x 77mm w x 105mm H           Weight         600g           Illuminant Life Span         5 years, more than 3 million me	Semiband Width	10nm			
Specular Component         SCI &	Measured Reflectance Range	0-20	00%		
Colour Space         CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab           Colour Difference Formular         ΔE*ab, ΔE*au, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*00v, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         E           Uluminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6s           Repeatability         MAV/SCI: ΔE* ≤0.03         MAV/SCI: ΔE* ≤0.05           Inter-Instrument Agreement         MAV/SCI: ΔE* ≤0.15         MAV/SCI: ΔE* ≤0.2           Measurement Mode         Single Measurement, Average Measurement           Locating Method         Camera View Finder Locating           Battery         Li-ion battery. 5000 measurements with 8 hours           Dimensions         184mm L x 77mm W x 105mm H           Weight         600g           Illuminant Life Span         5 years, more than 3 million measurements           Display         3.5 inch TFT colour LCD, Capacitive Touch Screen           Data Port         USB, Bluetooth® 4.0           Starage         English, French,	Measuring Aperture	Dual Aperture: 10mm/8mm & 5mm/4mm	Customized Aperture: 8mm/4mm/1x3mm		
Colour Difference Formular         ΔE*ab, ΔE*uv, ΔE*94, ΔE*cmc (2:1), ΔE*cmc (1:1), ΔE*OOV, ΔE (Hunter)           Other Colorimetric Index         WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)           Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F1, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6s           Repeatability         MAV/SCI: ΔΕ* ≤ 0.03         MAV/SCI: ΔΕ* ≤ 0.05           Inter-Instrument Agreement         MAV/SCI: ΔΕ* ≤ 0.15         MAV/SCI: ΔΕ* ≤ 0.2           Measurement Mode         Single Measurement, Average Measurement         Average Measurement           Locating Method         Camera View Finder Locating         Battery           Battery         Li-ion battery, 5000 measurements with 8 hours         Dimensions         Battery         Li-ion battery, 5000 measurements with 8 hours         Dimensions         Average Measurements         Average Measurements         Average Measurements         Average Measurement         Average Measurements         Average Measurements         Average Measurements         Average Measurements         Average Measurem	Specular Component	SCI & SCE			
Other Colorimetric Index       WI (ASTM E313, CIE/ISO, AATCC, Hunter) YI (ASTM D1925, ASTM 313, TI (ASTM E313, CIE/ISO)         Observer Angle       2° / 10°         Illuminant       D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12       D65, A, C, D50, D55, D75, F2, F7, F11         Displayed Data       Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset         Measuring Time       2.6s         Repeatability       MAV/SCI: ΔΕ* ≤ 0.03       MAV/SCI: ΔΕ* ≤ 0.05         Inter-Instrument Agreement       MAV/SCI: ΔΕ* ≤ 0.15       MAV/SCI: ΔΕ* ≤ 0.2         Measurement Mode       Single Measurement, Average Measurement         Locating Method       Camera View Finder Locating         Battery       Li-ion battery, 5000 measurements with 8 hours         Dimensions       184mm L x 77mm W x 105mm H         Weight       600g         Illuminant Life Span       5 years, more than 3 million measurements         Display       3.5 inch TFT colour LCD, Capacitive Touch Screen         Data Port       USB, Blueotoh* 4.0         Data Storage       English, French, German, Spanish, Portuguese, Chinese         Operating Environment       0-40°C, 0-85° Relative Humidity (non condensing), Altitude < 2000m         Storage Environment       PC OnShade Software, White & Black Calibration Cavity, Pow	Colour Space	CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter Lab			
Other Colorimetric Index         Metamerism Index MI, Staining Fastness, Colour Fastness, Colour Strength, Opacity           Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F2, F7, F11           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6s           Repeatability         MAV/SCI: ΔE* ≤ 0.03         MAV/SCI: ΔE* ≤ 0.05           Inter-Instrument Agreement         MAV/SCI: ΔE* ≤ 0.15         MAV/SCI: ΔE* ≤ 0.2           Measurement Mode         Single Measurement, Average Measurement           Locating Method         Camera View Finder Locating           Battery         Li-ion battery. 5000 measurements with 8 hours           Dimensions         184mm L x 77mm W x 105mm H           Weight         600g           Illuminant Life Span         5 years, more than 3 million measurements           Display         3.5 inch TFT colour LCD, Capacitive Touch Screen           Data Port         USB, Bluetooth® 4.0           Data Storage         2000 Standards : 20000 Standards : 20000 Samples           Languages         English, French, German, Spanish, Portuguese, Chinese           Operating Environment         0-40°C, 0-85° Relative H	Colour Difference Formular	$\Delta$ E*ab, $\Delta$ E*uv, $\Delta$ E*94, $\Delta$ E*cmc (2:1), $\Delta$ E*cmc (1:1), $\Delta$ E*00v, $\Delta$ E (Hunter)			
Observer Angle         2° / 10°           Illuminant         D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12         D65, A, C, D50, D55, D75, F2, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12           Displayed Data         Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset           Measuring Time         2.6s           Repeatability         MAV/SCI: ΔΕ* ≤ 0.03         MAV/SCI: ΔΕ* ≤ 0.05           Inter-Instrument Agreement         MAV/SCI: ΔΕ* ≤ 0.15         MAV/SCI: ΔΕ* ≤ 0.2           Measurement Mode         Single Measurement, Average Measurement           Locating Method         Camera View Finder Locating           Battery         Li-ion battery. 5000 measurements with 8 hours           Dimensions         184mm L x 77mm W x 105mm H           Weight         600g           Illuminant Life Span         5 years, more than 3 million measurements           Display         3.5 inch TFT colour LCD, Capacitive Touch Screen           Data Storage         USB, Bluetooth* 4.0           Data Storage         English, French, German, Spanish, Portuguese, Chinese           Operating Environment         0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m           Storage Environment         PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Other Colorimetric Index				
IlluminantF1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12F2, F7, F11Displayed DataSpectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour OffsetMeasuring Time2.6sRepeatabilityMAV/SCI: ΔΕ* ≤0.03MAV/SCI: ΔΕ* ≤0.05Inter-Instrument AgreementMAV/SCI: ΔΕ* ≤0.15MAV/SCI: ΔΕ* ≤0.2Measurement ModeSingle Measurement, Average MeasurementLocating MethodCamera View Finder LocatingBatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Observer Angle				
Measuring Time2.6sRepeatabilityMAV/SCI: ΔΕ* ≤0.03MAV/SCI: ΔΕ* ≤0.05Inter-Instrument AgreementMAV/SCI: ΔΕ* ≤0.15MAV/SCI: ΔΕ* ≤0.2Measurement ModeSingle Measurement, Average MeasurementLocating MethodCamera View Finder LocatingBatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0-40°C, 0-85° Relative Humidity (non condensing), Altitude < 2000m	Illuminant				
Repeatability       MAV/SCI: ∆E* ≤0.03       MAV/SCI: ∆E* ≤0.05         Inter-Instrument Agreement       MAV/SCI: ∆E* ≤0.15       MAV/SCI: ∆E* ≤0.2         Measurement Mode       Single Measurement, Average Measurement         Locating Method       Camera View Finder Locating         Battery       Li-ion battery. 5000 measurements with 8 hours         Dimensions       184mm L x 77mm W x 105mm H         Weight       600g         Illuminant Life Span       5 years, more than 3 million measurements         Display       3.5 inch TFT colour LCD, Capacitive Touch Screen         Data Port       USB, Bluetooth® 4.0         Data Storage       2000 Standards : 20000 Samples         Languages       English, French, German, Spanish, Portuguese, Chinese         Operating Environment       0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m         Storage Environment       PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Displayed Data	Spectrogram/Values, Samples Chromaticity Values, Colour Difference Values/Graph, PASS/FAIL Result, Colour Offset			
Inter-Instrument AgreementMAV/SCI: ΔE* ≤0.15MAV/SCI: ΔE* ≤0.2Measurement ModeSingle Measurement, Average MeasurementLocating MethodCamera View Finder LocatingBatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Measuring Time	2.6s			
Measurement ModeSingle Measurement, Average MeasurementLocating MethodCamera View Finder LocatingBatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Repeatability	MAV/SCI: ΔE* ≤0.03	MAV/SCI: ΔE* ≤0.05		
Locating MethodCamera View Finder LocatingBatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Inter-Instrument Agreement	MAV/SCI: ΔE* ≤0.15	MAV/SCI: ΔE* ≤0.2		
BatteryLi-ion battery. 5000 measurements with 8 hoursDimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Measurement Mode	Single Measurement, Average Measurement			
Dimensions184mm L x 77mm W x 105mm HWeight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Locating Method	Camera View Finder Locating			
Weight600gIlluminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Battery	Li-ion battery. 5000 measurements with 8 hours			
Illuminant Life Span5 years, more than 3 million measurementsDisplay3.5 inch TFT colour LCD, Capacitive Touch ScreenData PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Dimensions	184mm L x 77mm W x 105mm H			
Display  3.5 inch TFT colour LCD, Capacitive Touch Screen  USB, Bluetooth® 4.0  Data Storage  2000 Standards : 20000 Samples  Languages  English, French, German, Spanish, Portuguese, Chinese  Operating Environment  0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m  Storage Environment  -20~50°C, 0~85° Relative Humidity (non condensing)  Standard Accessories Included  PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Weight	600g			
Data PortUSB, Bluetooth® 4.0Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m	Illuminant Life Span	5 years, more than 3 million measurements			
Data Storage2000 Standards : 20000 SamplesLanguagesEnglish, French, German, Spanish, Portuguese, ChineseOperating Environment0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000mStorage Environment-20~50°C, 0~85° Relative Humidity (non condensing)Standard Accessories IncludedPC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Display	3.5 inch TFT colour LCD, Capacitive Touch Screen			
Languages  English, French, German, Spanish, Portuguese, Chinese  Operating Environment  0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m  Storage Environment  -20~50°C, 0~85° Relative Humidity (non condensing)  Standard Accessories Included  PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Data Port	USB, Bluetooth® 4.0			
Operating Environment  0~40°C, 0~85° Relative Humidity (non condensing), Altitude < 2000m  Storage Environment  -20~50°C, 0~85° Relative Humidity (non condensing)  Standard Accessories Included  PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Data Storage	2000 Standards : 20000 Samples			
Storage Environment -20~50°C, 0~85° Relative Humidity (non condensing)  Standard Accessories Included PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Languages	English, French, German, Spanish, Portuguese, Chinese			
Standard Accessories Included PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide	Operating Environment	$0\sim40^{\circ}$ C, $0\sim85^{\circ}$ Relative Humidity (non condensing), Altitude < 2000m			
,	Storage Environment	-20~50°C, 0~85° Relative Humidity (non condensing)			
Optional Accessories Micro Printer, TR Accessory (for Liquids, Powers and Gels)	Standard Accessories Included	PC OnShade Software, White & Black Calibration Cav	PC OnShade Software, White & Black Calibration Cavity, Power Adapter, Built-in Li-ion Battery, User Guide		
	Optional Accessories	Micro Printer, TR Accessory (for Liquids, Powers and Gels)			

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